AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

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"Promotion of Knowledge of Materials of Engineering and Standardization of Specifications and Methods of Testing"

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# The Federal Housing Problem[1]

Remarks by Miles L. Colean, Director Technical and Low-Cost Housing Divisions, Federal Housing Administration

I AM very much in the position an ancient Greek peasant might be in finding himself before an assemblage of Olympians. From many years of specification writing I have become so used to saying "in accordance with A.S.T.M. standards so-and-so," that the phrase has taken on an almost religious connotation. I have developed a childlike faith that by invoking the gods of the American Society for Testing Materials, I would be obtaining a magical assurance that the material would be right.

I propose to deal with the policy of the Federal Housing Administration with respect to the house itself, rather than with the financial aspects of the mortgage problem. It is all too easy to forget that basically it is a good house in a good environment which makes a good mortgage. It is pertinent, therefore, to call attention to the fact that it is houses rather than mortgages, materials, or abstract designs that we are endeavoring to produce. It is impossible to leave the latter out of the discussion, but the important thing to remember is that they are means, rather than ends in themselves, and that the emphasis must be kept upon the result, which is the production of an adequate supply of dwellings where families may live comfortably and efficiently within their means.

Our endeavor in this respect, it seems to me should have a three-fold purpose:

*First:* To build better houses.
*Second:* To build more houses.
*Third:* To provide the means for removing and replacing houses which have outlasted a reasonable usefulness.

I wish to emphasize the importance of this three-fold approach, and to indicate in what respects the Federal Housing Administration, acting strictly within the limited powers conferred upon it by the National Housing Act, is endeavoring to make its contribution along all three lines.

The National Housing Act is not a compulsory measure, but a trading measure. If you will build a house of a certain kind in a certain way and write a mortgage in a certain manner, it will insure the lender against loss of his principal, and in the major part, against loss of interest. Although it compels the Administration to rely more on education than compulsion, it may for that very reason assure itself a broader and more deeply rooted place in our economic system.

### Providing Better Houses

The term "better houses" is, of course, relative. It assumes that what we have is not altogether satisfactory and that dwellings meeting higher standards are needed. It also assumes the setting of such higher standards as a guide for the development of housing. While the Housing Administration may not itself construct houses, it may, and appears in fact to be required to set standards for housing. The Administration accepted this responsibility and made such a program integral with the issuing of its regulations for mortgage insurance and the establishment of its appraisal procedure.

The standards set do not represent a complete job, but are rather the beginning of a long-time program subject to adjustment and development in the years to come. The present state of the bulk of American housing is such as to make any other point of view toward the question of standards utterly meaningless. Much of our housing is of mediocre construction or less, the newer of it tending to the use of materials for display rather than durability; it is poorly arranged for the privacy and convenience of its occupants, and it is so crowded on its land that a required separation of no more than six feet becomes an onerous restriction. In face of a condition of this sort the attitude of the Administration must be realistic. It cannot expect to change the situation in a year or even in a decade. Its standards, therefore, are at the outset low, and it will be only through a long process of education that these standards may gradually be raised.

This better housing will come from several sources: from a more rational utilization of land which will lay out plottage economically but without crowding, and which will assure light, air and privacy to all the rooms of a house; from more scientific planning—planning which studies the functional organization of the house with all the skill of a machine designer; also the possibilities which may exist in the more efficient use of more adaptable materials. How great these possibilities are we can only guess. You have heard Mr. Buchard's very thorough summary and his forecasts, and may draw your own conclusions.[2] The Federal Housing Administration is endeavoring to cooperate with this movement. While maintaining a healthy skepticism, it is sympathetic, and although it will require exacting tests of the performance of new materials and new methods of construction, it is ready to accept the evidence of such tests when they are favorable.

### Building More Houses

The second point I wish to emphasize is not unallied to the first, since the research and experimentation which may produce better houses will, I believe, also permit us to build more houses. The housing shortage cannot be measured by cases of vacancy and doubling up alone, and this shortage

[1] This extended abstract is based on Mr. Colean's address presented at the A.S.T.M. Thirty-eighth Annual Meeting, Detroit, June 26.
[2] *The Role of Materials in Modern Housing*, by J. E. Burchard, address presented at Thirty-eighth Annual Meeting. (Copies of this paper are available in separate form.)

is already creating a serious problem in many localities. A much more serious problem, however, is the rapidly growing shortage due to anticipated final obsolescence of a very large quantity of existing structures.

It is becoming apparent that our houses are wearing out at a rate faster than we are replacing them, and that replacements are not being made of the types of housing most needed. Reasonable inferences would seem to indicate that the replacement rate is about once in one hundred years, and that our new dwelling construction has been designed and built for a fairly restricted proportion of the population—probably not to exceed the upper twenty-five or thirty per cent. Housing designed for so limited a group is not, when passed down second-hand to the groups below, particularly adapted to the needs of the latter groups; also a building program confined to the upper one-third or one-quarter cannot in the next one or two decades possibly result in a sufficient number of hand-me-down houses to meet the quantitative needs of the population as a whole.

In face of the accelerating accumulation of worn-out houses, the housing market is becoming yearly more insistent in its demand. I do not believe that industry has before it a single problem more challenging than this. While governmental subsidies may temporarily be necessary to alleviate the condition, the problem is ultimately to be solved only through technical advancement, and through the establishment of a system of mortgage finance upon which building may confidently rely. The first must be met largely by industry itself; the second will probably depend in great part upon the Government. The National Housing Act was an important step toward achieving such a system. Through the means of long-term, steadily amortizing mortgages, it makes sure that funds will be constantly flowing through the mortgage system rather than be frozen in it. Through the reduction of the need for second mortgages, and the elimination of high interest rates, renewal fees, bonuses, etc., it makes possible a more efficient and productive use of the funds which, in the last sense, are made available for the use of the construction industry.

Three things are the essential background of any housing program: liquid money, cheap money, and available money. They provide industry with the assurances it must have in plotting its course. They guarantee that capital is made available for building and development purposes instead of being dissipated through a series of financial manipulations, thus, reducing the cost of occupying houses, and by doing so, making an important step toward the broader market and the goal of more houses which we are seeking.

**Replacement of Obsolete Buildings**

I have noted our slow rate of replacement and the disproportinate amount of obsolescent buildings which are characteristics of our stock of housing. This may be ascribed to our inability to supply a broad market with new housing, which may be partly true, but I believe another reason for the preponderance of obsolescent structures is that not only have we no means for ridding ourselves of sub-standard dwellings, but through various habits and practices, we actually preserve a stock of certain kinds of housing.

The unfortunate results of this fact are many. Among them must certainly be put a retarding of technical advancement. Another is the constant expansion of cities, leaving behind areas which are social and economic liabilities, and forcing new housing into outlying areas where it must bear the costs of land subdivision, paving, utility installation, and transportation. New housing produced under such circumstances is needlessly costly.

I cannot go fully into the causes which prompt us to preserve old buildings beyond a reasonable period of use, nor can I prophesy that we shall rapidly be able to free ourselves from them. But there are other causes which contribute to the inertia of the situation which can be overcome. Among these is the practice which has characterized our mortgage system of maintaining a permanent debt on real estate. Mortgages have been made for short terms without provision for amortization. They have been renewed periodically instead of being paid off. Owners and lenders alike have counted upon a supposed inevitable increase in land value which would counterbalance the depreciation of the improvements, keeping both equity and debt secure. This theory has been sadly unsupported by the facts and we then have a condition such as has been prevalent during the past few years when we have been more concerned by the problem of the debt structure on real estate than we have with the problem of housing in its physical aspects.

A mortgage system so designed that the loan would be gradually retired at a rate well within that of property depreciation would prevent such a condition. It would have the advantage of leaving the property unencumbered at the time when consideration might be given to its replacement with more modern improvements. The mortgage pattern prescribed by the National Housing Act as a prerequisite to mortgage insurance does just that. The Act sets a maximum period of twenty years, during which a mortgage must be fully amortized. The appraisal regulations set up a further check upon the probable remaining useful life of the building in case this may be under twenty years. If this system becomes as widely adopted as is anticipated, the building-up again of an unwieldy real estate structure should become impossible, debt payment and building obsolescence would be related, and one of the real impediments to the replacement of buildings as they become obsolete would be removed.

Housing in the sense of shelter for the majority of the population had been neglected by industry, the technical professions, and Government until a few years ago. Now all three are alert to the necessities and opportunities which are inherent in it, and a solution of our housing problems is dependent in no small part upon the success with which these three elements work together.

In some respects Government has taken the lead, and in a time of industrial and economic stagnation it is necessary and reasonable that this should be done. The HOLC was established to relieve the top-heavy mortgage structure and to allow banks to make their funds again available for productive purposes. The Housing Division of the PWA entered the housing field directly with a view, through actual demonstrations of low rental housing, to emphasize the greatness of the need and to indicate the way to private investors and builders. Government has gone further, and through such permanent agencies as the Home Loan Bank Board and the FHA has set up machinery for the stabilizing of housing finance.

Since FHA remains the latest expression of Governmental policy in respect to housing, it may be taken to indicate the way in which the Government would like to go. It is aid and leadership which the Administration wishes to offer but not compulsion, and it believes that finance and industry and invention will respond on their side of the bargain. By maintaining such a cooperative effort we should soon be able to foresee a period in which home building will take its proper place among the major industries and the possibility of adequate housing be for the first time within the reach of a majority of the American people.

# Many New Tentative Standards and Revisions Approved

By recent action of Committee E-10 on Standards, 32 new tentative standards were approved and revisions were accepted in 17 existing tentative standards. Revisions of six A.S.T.M. standards were accepted for publication as tentative and approval was given to the withdrawal of two standards. With the exception of the three test methods prepared by Committee E-2 on Spectrographic Analysis, and the recommendations made by Committee D-11 on Rubber Products which were approved by Committee E-10 by letter, all the items below were acted upon at the E-10 meeting on August 22.

All new specifications and tests and the various revisions will be included in the 1935 *Proceedings*, Part I, and for convenience are also given in complete form in the 1935 Book of A.S.T.M. Tentative Standards. They will also be available in separate form and can be ordered in quantity.

The large number of items recommended to E-10 by the various standing committees gives some indication of the consistent and intensive A.S.T.M. work in the standardization field. Including the actions reported below, the Society now has 290 tentative standards and 504 specifications and tests which have been adopted as standard.

### New Tentative Standards

*Tentative Specifications for:*

Carbon-Steel Plates for Boilers and Other Pressure Vessels for Stationary Service (A 70 – 35 T) *Committee A-1 on Steel*
Carbon-Steel and Alloy-Steel Castings for Railroads (A 87 – 35 T) *Committee A-1*
Electric-Resistance-Welded Steel and Open-Hearth Iron Boiler Tubes (A 178 – 35 T) *Committee A-1*
Seamless Cold-Drawn Steel Heat-Exchanger and Condenser Tubes (A 179 – 35 T) *Committee A-1*
Carbon-Steel Castings for Miscellaneous Industrial Uses (A 180 – 35 T) *Committee A-1*
Forged or Rolled Steel Pipe Flanges for General Service (A 181 – 35 T) *Committee A-1*
Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for Service at Temperatures from 750 to 1100 F. (A 182 – 35 T) *Committee A-1*
Heat-Treated Carbon-Steel and Alloy-Steel Track Bolts (A 183 – 35 T) *Committee A-1*
24 per cent Chromium, 12 per cent Nickel Alloy Steel Castings (A 171 – 35 T) *Committee A-10 on Iron-Chromium, Iron-Chromium-Nickel and Related Alloys*
25 per cent Chromium, 20 per cent Nickel Alloy Steel Castings (A 172 – 35 T) *Committee A-10*
28 per cent Chromium, 9 per cent Nickel Alloy Steel Castings (A 173 – 35 T) *Committee A-10*
20 per cent Nickel, 9 per cent Chromium Alloy Steel Castings (A 174 – 35 T) *Committee A-10*
35 per cent Nickel, 15 per cent Chromium Alloy Steel Castings (A 175 – 35 T) *Committee A-10*
Soft Corrosion-Resisting Chromium Steels (Sheets, Flats, Strip) (A 176 – 35 T) *Committee A-10*
High-Strength Corrosion-Resisting Chromium-Nickel Steels (Sheets and Strips) (A 177 – 35 T) *Committee A-10*

*Tentative Methods of:*

Test for Vapor Pressure of Motor and Aviation Gasoline (Reid Method) (D 417 – 35 T) *Committee D-2 on Petroleum Products and Lubricants*
Surveying and Sampling Soils for Use in Place as Subgrades for Highways (D 420 – 35 T) *Committee D-4 on Road and Paving Materials*
Preparing Soil Samples as Received from the Field for Mechanical Analysis and the Determination of the Subgrade Soil Constants (D 421 – 35 T) *Committee D-4*
Mechanical Analysis of Soils (D 422 – 35 T) *Committee D-4*
Test for Liquid Limit of Soils (D 423 – 35 T) *Committee D-4*
Test for Plastic Limit and Plasticity Index of Soils (D 424 – 35 T) *Committee D-4*
Test for Centrifuge Moisture Equivalent of Soils (D 425 – 35 T) *Committee D-4*
Test for Field Moisture Equivalent of Soils (D 426 – 35 T) *Committee D-4*
Test for Shrinkage Factors of Soils (D 427 – 35 T) *Committee D-4*
Testing Pile Floor Covering (D 418 – 35 T) *Committee D-13 on Textile Materials*
Testing Fineness of Wool (D 419 – 35 T) *Committee D-13*
Test for Accelerated Aging of Vulcanized Rubber (D 428 – 35 T) *Committee D-11 on Rubber Products*
Test for Adhesion of Vulcanized Rubber to Metal (D 429 – 35 T) *Committee D-11 on Rubber Products*
Flexing Tests for Rubber Products (D 430 – 35 T) *Committee D-11*
Quantitative Spectrochemical Analysis of High Grade Pig Lead for Copper, Bismuth, Silver and Nickel (E 25 – 35 T) *Committee E-2 on Spectrographic Analysis*
Quantitative Spectrochemical Analysis of Zinc for Lead, Iron and Cadmium (E 26 – 35 T) *Committee E-2*
Zinc Alloy Die Castings for Minor Constituents and Impurities (E 27 – 35 T) *Committee E-2*

### Revisions in Existing Tentative Standards

*Tentative Specifications for:*

High Tensile Strength Carbon-Steel Plates for Pressure Vessels (Plates 2 in. and Under in Thickness) (A 149 – 35 T)
High Tensile Strength Carbon-Steel Plates for Fusion-Welded Pressure Vessels (Plates over 2 in. up to and Including 4 in. in Thickness) (A 150 – 35 T)
Alloy-Steel Castings for Valves, Flanges and Fittings for Service at Temperatures from 750 to 1100 F. (A 157 – 35 T)
Seamless Alloy-Steel Pipe for Service at Temperatures from 750 to 1100 F. (A 158 – 35 T)
Cold-Rolled Strip Steel (A 109 – 35 T)
Copper-Silicon Alloy Wire for General Purposes (B 99 – 35 T)
Structural Clay Load-Bearing Wall Tile (C 34 – 35 T)
Wood to be Used as Panels in Weather Tests of Paints and Varnishes (D 358 – 35 T)
Insulated Wire and Cable: Class AO, 30 per cent Hevea Rubber Compound (D 27 – 35 T)
Insulated Wire and Cable: Performance Rubber Compound (D 353 – 35 T)

*Tentative Methods of:*

Chemical Analysis of Portland Cement (C 114 – 35 T)
Sampling and Testing Structural Clay Tile (C 112 – 35 T)
Testing and Tolerances for Woolen Yarns (D 403 – 35 T)
Testing and Tolerances for Worsted Yarns (D 404 – 35 T)
Verification of Testing Machines (E 4 – 35 T)

*Tentative Definitions of:*

Terms Relating to Petroleum (D 288 – 35 T)
Terms Relating to Methods of Testing (E 6 – 35 T)

### Tentative Revisions of Standard Specifications and Methods

*Standard Specifications for:*

Steel for Bridges (A 7 – 34)
Steel for Buildings (A 9 – 34)
Lap-Welded and Seamless Steel and Lap-Welded Iron Boiler Tubes (A 83 – 34)
Structural Silicon Steel (A 94 – 33)
Round-Hole Screens for Testing Purposes (E 17 – 33)

*Standard Methods of:*

Test for Gravity of Petroleum and Petroleum Products by Means of the Hydrometer (D 287 – 33)

### Withdrawal of Standards

*Standard Specifications for:*

Boiler and Firebox Steel for Stationary Service (A 70 – 33)
Carbon-Steel Castings for Railroads (A 87 – 27)

# Dudley Medal Committee Appointed

The Executive Committee has appointed the following to constitute the Committee on Award of the Charles B. Dudley Medal:

N. L. MOCHEL, *Chairman*, Metallurgical Engineer, Westinghouse Electric and Manufacturing Co., Philadelphia, Pa.
M. F. SKINKER, Assistant Director of Research, Brooklyn Edison Co., Brooklyn, N. Y.
F. C. LANG, Engineer of Tests, Inspection and Research, Minnesota Highway Dept., St. Paul, Minn.

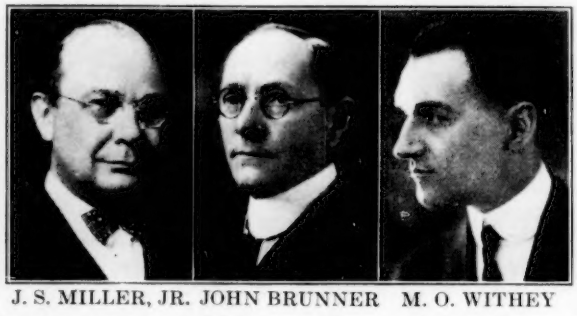
The committee will review the eligible technical papers presented at the 1935 annual meeting and select the one of outstanding merit which constitutes an original contribution on research in engineering materials. Award of the Medal will be made at the Thirty-ninth Annual Meeting in Atlantic City.

# VI. Long-Time Society Committee Members

**Sixth in the Series of Notes on Long-Time A.S.T.M. Members**

AS a continuation of the series of articles in the A.S.T.M. BULLETIN comprising notes on the outstanding activities of long-time members of the Society, there appear below outlines of the work of three additional members. In general, the men whose sketches will appear in this series will have been affiliated with the Society for 25 years or more and will have taken part in committee work for long periods. No definite sequence is being followed in these articles.

JOHN BRUNNER, Manager, Department of Metallurgy and Inspection, Illinois Steel Co., received his technical education in Sweden, completing a four-year course in the Royal Institute of Technology, Stockholm. His early industrial work included the design and construction of printing machinery and bridge and steel works design and erection. He was Chief Engineer of the city of Pittsburgh, Pa., for a period and for 33 years has been with the Illinois Steel Co. in various positions, including supervision of design and construction, research, investigations, etc.



J. S. MILLER, JR. JOHN BRUNNER M. O. WITHEY

Mr. Brunner's affiliation with the Society dates from 1903. He has served twice on the A.S.T.M. Executive Committee, from 1913 to 1915 and again from 1916 to 1918. For many years he has been a member of Committee A-1 on Steel and several of its subcommittees, Committee A-5 on Corrosion of Iron and Steel and Committee A-10 on Iron-Chromium, Iron-Chromium-Nickel and Related Alloys.

He has been a long-time member of many technical societies. He is a life member of the American Society of Civil Engineers and the American Society of Engineers, has served as president of the Chicago Engineers Club and is a life member of the Chicago Art Institute. Mr. Brunner has done a great deal of work on material for equipment and track structure of railroads, in which field he is an authority. It is interesting to note that he was knighted by the King of Sweden in the Royal Order of North Star.

JOHN S. MILLER, JR., Director, Technical Bureau, The Barber Asphalt Co., after receiving his technical education at Cornell University entered the staff of the Laboratory, Supervising Architect's Office, U. S. Treasury Dept., Washington, D. C., becoming Principal Assistant Chemist. In 1909 he entered the employ of his present company and in 1926 when the Technical Bureau was formed he was made Director.

Mr. Miller has been a member of A.S.T.M. since 1903 and in the very early activities of Committee C-1 on Cement and D-1 on Preservative Coatings for Structural Materials he took part in the cooperative physical tests and chemical analyses upon which the first standard tests were based. For many years Mr. Miller has been an active member of Committee D-4 on Road and Paving Materials, D-8 on Bituminous Waterproofing and Roofing Materials and was appointed to Committee E-9 on Research in 1935. He represents Committee D-4 in the international cooperative work on the standardization of tests for emulsified asphalts.

Mr. Miller is vice-president of the Association of Asphalt Paving Technologists and is a member of the Institute of Chemical Engineers, American Chemical Society and American Society of Municipal Improvements.

M. O. WITHEY, Professor of Mechanics, University of Wisconsin, is a graduate of Dartmouth College, 1904, and Thayer School of Civil Engineering. Since 1905 he has been on the staff of the Mechanics Department at the University of Wisconsin and has been in charge of Materials Testing Laboratory since 1907. He served as Consulting Testing Engineer for the Wisconsin Highway Commission.

Professor Withey has been a member of A.S.T.M. since 1907 and he has held membership continuously on Committee C-9 on Concrete and Concrete Aggregates since its organization in 1914. He is a member of Committee D-7 on Timber and has cooperated in various test programs carried out by Committee C-1 on Cement and C-6 on Drain Tile. He is a member of Committee E-6 on Papers and Publications. One of his outstanding services to A.S.T.M. has been in the capacity of chairman since its organization in 1927 of the Research Committee on Yield Point of Structural Steel.

Professor Withey has taken an active part in the research programs sponsored by the American Concrete Institute and in 1932 was awarded the A. C. I. Wason Medal for Research in recognition of his paper on "Some Long-Time Tests of Concrete." He is the author of a number of technical bulletins, papers, and textbooks.

## Inland Steel Becomes Sustaining Member

The Inland Steel Co. with main offices in Chicago will become a Sustaining Member effective on January 1, 1936; B. E. Baker, Chief Inspector, will continue as the A.S.T.M. representative of this membership. Including Inland, there are now nine sustaining members and it is hoped that this number may be increased considerably during the next year.

This class of membership with annual dues of $100 was established so that organizations might support A.S.T.M. work to a degree more nearly commensurate with the intrinsic value to them of the Society's standardization and research achievements.

## Highway Research Board Meeting

The fifteenth annual meeting of the Highway Research Board will be held on December 5 and 6 at the building of the National Academy of Sciences and National Research Council, 2101 Constitution Ave., Washington, D. C. All members of the Society are cordially invited to attend this meeting. Reduced round-trip rates have been granted by the railroads and certificates can be obtained from the Board office in Washington. The list of topics to be discussed includes several subjects of interest in such classifications as highway transportation economics, highway design, materials and construction, maintenance, traffic and safety and soils investigations.

## New Standards in Construction Field

A number of the specifications adopted as A.S.T.M. standards this year and many of the new tentative specifications approved in 1935, cover materials which find wide usage in constructive projects—buildings, pipe lines, highways and related structures.

Leading architects, designing and construction engineers, and building code officials stress the importance of using materials of a definite quality in construction, especially in the larger projects, or where safety is a prime factor. Conformity with A.S.T.M. specification requirements is one assurance that materials are of a definite, determinable quality. The rigorous A.S.T.M. procedure in developing a standard specification, or test, results in practical and authoritative standards—quality standards.

The already widespread—and increasing—use of the standardized specifications and tests of the Society bespeaks their industrial importance. The following concise list should be of interest to building code officials, engineers and contractors, architects and others interested in the construction industries.

### STANDARD SPECIFICATIONS ADOPTED IN 1935

(These have been previously published as tentative)

METALLIC MATERIALS

*Standard Specifications for:*
Billet-Steel Concrete Reinforcement Bars (A 15 – 35)
Rail-Steel Concrete Reinforcement Bars (A 16 – 35)

NON-METALLIC MATERIALS

*Standard Specifications for:*
Clay Sewer Pipe (C 13 – 35)
Concrete Sewer Pipe (C 14 – 35)
Reinforced-Concrete Sewer Pipe (C 75 – 35)
Ready-Mixed Concrete (C 94 – 35)
Creosote (D 390 – 35)
Creosote - Coal Tar Solution (D 391 – 35)
Dry-Bleached Shellac (D 207 – 35)

### NEW TENTATIVE SPECIFICATIONS

(Approved in 1935. Certain of these were issued previously but were extensively revised this year)

METALLIC MATERIALS

*Tentative Specifications for:*
Axle-Steel Concrete Reinforcement Bars (A 160 – 35 T)
Carbon-Steel Castings for Miscellaneous Industrial Uses (A 180 – 35 T)
High-Strength Corrosion-Resisting Chromium-Nickel Steels (Sheets, Strips) (A 177 – 35 T)
Soft Corrosion-Resisting Chromium-Nickel Steels (Sheets, Strip, Plates) (A 167 – 35 T)
Soft Corrosion-Resisting Chromium Steels (Sheets, Flats, Strip) (A 176 – 35 T)
Wrought-Iron Plates (A 42 – 35 T)
Wrought-Iron Rivets and Rivet Rounds (A 152 – 35 T)
Uncoated Wrought-Iron Sheets (A 162 – 35 T)
Zinc-Coated (Galvanized) Wrought-Iron Sheets (A 163 – 35 T)
Cast-Iron Culvert Pipe (A 142 – 35 T)
Wrought Phosphor-Bronze Bearings and Expansion Plates for Bridges and Structures (B 100 – 35 T)
Bare Stranded Copper Cable: Hard, Medium-Hard or Soft (B 8 – 35 T)
Copper-Silicon Alloy Wire for General Purposes (B 99 – 35 T)
Lead-Coated Copper Sheets (B 101 – 35 T)

NON-METALLIC MATERIALS

*Tentative Specifications for:*
Building Brick (Made from Clay or Shale) (C 62 – 35 T)
Structural Clay Non-Load-Bearing Tile (C 56 – 35 T)
Refractories for the Construction of Incinerators (C 106 – 34 T)
Concrete Irrigation Pipe (C 118 – 35 T)
Reinforced-Concrete Culvert Pipe (C 76 – 35 T)
Timber Piles (D 25 – 35 T)
Asphalt for Use in Constructing Built-Up Roof Coverings (D 312 – 35 T)
Asphalt Roofing Surfaced with Coarse Mineral Granules (D 249 – 35 T)
Asphalt Roofing Surfaced with Fine Mineral Granules (D 248 – 35 T)
Asphalt Roofing Surfaced with Powdered Talc or Mica (D 224 – 35 T)
Asphalt Shingles Surfaced with Coarse Mineral Granules (D 225 – 35 T)
Insulated Wire and Cable: Class AO, 30 per cent Hevea Rubber Compound (D 27 – 35 T)
Friction Tape for General Use for Electrical Purposes (D 69 – 35 T)
Rubber Insulating Tape (D 119 – 35 T)

*Tentative Methods of:*
Testing Brick (Modulus of Rupture, Compressive Strength, Absorption) (C 67 – 35 T)
Test for Soundness of Coarse Aggregates by Use of Sodium Sulfate or Magnesium Sulfate (C 89 – 35 T)
Test for Soundness of Fine Aggregates by Use of Sodium Sulfate of Magnesium Sulfate (C 88 – 35 T)
Test for Determination of Voids in Coarse Aggregates (C 30 – 35 T)
Test for Centrifuge Moisture Equivalent of Soils (D 425 – 35 T)
Test for Field Moisture Equivalent of Soils (D 426 – 35 T)
Test for Liquid Limit of Soils (D 423 – 35 T)
Mechanical Analysis of Soils (D 422 – 35 T)
Test for Residue of Specified Penetration (D 243 – 35 T)
Test for Plastic Limit and Plasticity Index of Soils (D 424 – 35 T)
Preparing Soil Samples as Received from the Field for Mechanical Analysis and the Determination of the Subgrade Soil Constants (D 421 – 35 T)
Test for Shrinkage Factors of Soils (D 427 – 35 T)
Surveying and Sampling Soils for Use in Place as Subgrades for Highways (D 420 – 35 T)

## A "Standard" Carbon Steel for High- and Low-Temperature Testing

Industry is accustomed to cooperating with the National Bureau of Standards in the analysis of "Standard Samples" of steel so as to provide material the composition of which is thoroughly known as a result of many analyses by the Bureau and the cooperators, and which may thereafter serve for checking either an analyst's ability to get correct results by an old method, or to evaluate the usefulness of a new one.

A rather similar opportunity to "standardize" testing procedure for long- and short-time high-temperature tension, and high- and low-temperature impact testing through the medium of a cooperatively tested steel is available to industry through the Joint A.S.M.E.–A.S.T.M. Research Committee on Effect of Temperature on the Properties of Metals.

An extremely uniform 0.40 per cent carbon steel has been prepared for the committee by the Bethlehem Steel Co. Every bar has been tested at Bethlehem for tensile strength and hardness. The results show a most remarkable degree of uniformity, making the steel especially suited for use in comparisons of test methods and as further evidence of its uniformity endurance tests made on it at Battelle Memorial Institute show it gives a smooth stress-cycle curve, not a "scatter band" as do so many steels.

This steel and an austenitic 18-8 steel are being used in the "3-year" (creep) long-time high-temperature tests that are being carried out by the Joint Committee, by which information is sought as to the validity of extrapolation from shorter tests. Several thousand hours of these creep tests have already been carried out.

Thus the material has some of its properties very thoroughly defined. It is also to be used for cooperative studies of testing methods in creep, in short-time high-temperature tension tests, and in high- and low-temperature impact tests. Some dozen laboratories are already cooperating in this work which will further define its high- and low-temperature behavior.

Other laboratories which wish to use the steel for verification of their own test procedure at high and low temperatures and who will make the results of their tests available to the committee are invited to communicate with the Secretary of the Committee, Mr. N. L. Mochel, Westinghouse Electric & Manufacturing Co., P. O. Box 1522, Philadelphia.

American Society for Testing Materials

# BULLETIN

*President*
H. S. VASSAR

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**Number 76** **October 31, 1935**

## Continuing Service

THE Society through its development of standards of quality, and stimulation of research so that more complete knowledge of the properties of materials will be available, has been called a service society. With the depression years in mind, a question that may be asked is "What is the present status of the Society's service?"

The formation of several new standing committees to undertake work in fields not previously covered by A.S.T.M. activity has been announced. This year a new committee on gaseous fuels was organized and the outline of work which it will shortly get under way has been completed.

It is expected that the Society will begin work in the field of soap and other detergents through a new standing committee which has been authorized. With the appointment of the temporary chairman and a steering committee to assist in the selection of personnel and defining the scope, a new committee on paper and allied products will in the near future take its place with the some 60 other A.S.T.M. groups.

This BULLETIN includes certain articles pertinent to the question asked above. The review of the research activities beginning on page 10 and the large list of products covered by new specification requirements and test methods given on page 3 indicate the virility of committee work already under way.

Through the local meetings planned by the district committees, prominent technologists in various fields will discuss subjects pertinent to A.S.T.M. and it is planned that the Society's specifications will be critically analyzed from the standpoint of local interest. In these and other ways, district committees will be active in furthering Society work.

It has been stated that "the value of a man or an organization is measured by the service it renders to society." The continuation of the rising trend of A.S.T.M. activities would indicate that A.S.T.M. is rendering increased service.

## Yes—Membership Again

IT seems but yesterday that the Society's twenty-fifth birthday was celebrated in Atlantic City. Stopping to check up, we find that it was over eight years ago.

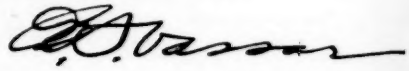
At the time in a review of the first quarter-century of A.S.T.M. the BULLETIN asked:

> *"What of the next twenty-five years? Will the Society continue to grow both in membership and influence as it has in the past?"*

One-third of that "next twenty-five years" has slipped by and—what a period it has been! I think all would agree that the Society has fully maintained its place in accomplishment and influence. But what of membership? Membership work from 1931 through 1934 was a continual fight against heavy odds to offset losses. But the tide has turned.

At the recent meeting of the Executive Committee plans were laid for a determined membership effort. It is planned to use temporarily an increased amount of the time of headquarters staff to cooperate with our active members in this work. In many cases the staff will do the groundwork asking individual members to make personal contacts with selected prospective members.

When the call comes to you, we are confidently expecting an enthusiastic response—but don't wait for a call—How about that new member that you might get *NOW*, one that perhaps no one could approach as well as you?



*President*

## Society Appointments

The following Society representatives and appointments are announced:

W. H. SPENCER, Foundry Superintendent and Metallurgist, Sealed Power Corp., as American representative on I.A.T.M. Committee on Cast Iron.

S. M. PHELPS, Director of Research and Tests, Refractories Fellowship, Mellon Institute of Industrial Research on the Pittsburgh District Committee, his term expiring in 1937.

HAROLD MICHENER, Timber Products Engineer, Southern California Edison Co., as a member of the Southern California District Committee.

F. E. RICHART, Research Professor of Engineering Materials, University of Illinois, on the Committee on Masonry and Reinforced Concrete of the Structural Division of the American Society of Civil Engineers.

RUDOLPH P. MILLER, Consulting Engineer, New York City, on the Building Code Correlating Committee of the American Standards Association, with R. E. HESS as alternate.

N. L. MOCHEL, Metallurgical Engineer, Westinghouse Electric and Manufacturing Co., on the American Bureau of Welding.

J. H. HALL, Technical Assistant to President, Taylor-Wharton Iron and Steel Co., W. R. FULLER, Technical Director, Pratt & Lambert, Inc., and W. E. EMLEY, Chief, Division of Fibrous and Organic Materials, National Bureau of Standards on Committee E-6 on Papers and Publications.

J. S. MILLER, JR., Director, Technical Bureau, The Barber Asphalt Co., on Committee E-9 on Research.

R. P. ANDERSON, Secretary, Division of Refining, American Petroleum Institute, and H. S. MATTIMORE, Engineer of Materials, Pennsylvania State Highway Dept., on Committee E-10 on Standards.

CLOYD M. CHAPMAN, Consulting Engineer, and L. I. NEALE, Sales Manager, Atlantic Gypsum Products Co., reappointed on Committee E-8 on Nomenclature and Definitions.

## All Items on Letter Ballot Adopted

The canvass of the recent Society letter ballot showed that all of the items on the ballot were adopted. The recommendations to adopt 21 tentative specifications and test methods as standard, and tentative revisions of 17 existing standards, thus became official as of September 3.

A complete list of all items on the ballot is given below, with the votes tabulated. There were a total of 554 ballots cast, and the difference between this figure, and the sum of affirmative and negative votes on a particular item represent ballots marked "not voting" for that item. A two-thirds vote of those voting is required for adoption.

| Items | Affirmative | Negative |
|---|---|---|
| REVISIONS OF EXISTING STANDARDS | | |
| *Standard Specifications for:* | | |
| Billet-Steel Concrete Reinforcement Bars (A 15 – 33) | 170 | 5 |
| Rail-Steel Concrete Reinforcement Bars (A 16 – 33) | 166 | 4 |
| List of Specifications for Steel Suitable for Fusion Welding (A 151 – 33) | 147 | 2 |
| Hollow Rolled Staybolt Iron (A 86 – 30) | 90 | 1 |
| Dry Bleached Shellac (D 207 – 33) | 91 | 0 |
| Shellac Varnish (D 359 – 34) | 91 | 0 |
| Cotton Rubber-Lined Fire Hose for Public and Private Fire Department Use (D 296 – 34) | 61 | 0 |
| *Standard Methods of:* | | |
| Chemical Analysis of Manganese Bronze (B 27 – 19) | 114 | 0 |
| Test for Softening Point of Fire-Clay Brick (C 24 – 33) | 78 | 1 |
| Routine Analysis of Dry Red Lead (D 49 – 33) | 118 | 1 |
| Routine Analysis of Yellow and Orange Pigments Containing Chromium Compounds, Blue Pigments and Chrome Green (D 126 – 27) | 113 | 1 |
| Routine Analysis of White Linseed Oil Paints (D 215 – 29) | 113 | 1 |
| Test for Distillation of Gasoline, Naphtha, Kerosine and Similar Petroleum Products (D 86 – 30) | 197 | 1 |
| Test for Precipitation Number of Lubricating Oils (D 91 – 33) | 173 | 2 |
| Test for Water and Sediment in Petroleum Products by Means of Centrifuge (D 96 – 30) | 183 | 0 |
| Test for Dilution of Crankcase Oils (D 322 – 33) | 171 | 0 |
| *Standard Definitions of:* | | |
| Clay Refractories (C 27 – 28) | 77 | 1 |
| TENTATIVE STANDARDS TO BE ADOPTED AS STANDARD | | |
| Metallic Materials | | |
| *Tentative Specifications for:* | | |
| Heat-Treated Steel Elliptical Springs (A 147 – 33 T) | 119 | 0 |
| Pig Lead (B 29 – 34 T) | 115 | 1 |
| *Tentative Methods of:* | | |
| Chemical Analysis of Aluminum and Light Aluminum Alloys (B 40 – 33 T) | 112 | 1 |
| *Tentative Recommended Practice for:* | | |
| Safeguarding Against Embrittlement of Hot-Galvanized Structural Steel Products and Procedure for Detecting Embrittlement (A 143 – 32 T) | 126 | 0 |
| Non-Metallic Materials | | |
| *Tentative Specifications for:* | | |
| Clay Sewer Pipe (C 13 – 33 T) | 91 | 4 |
| Ready-Mixed Concrete (C 94 – 33 T) | 124 | 6 |
| Non-Reinforced Concrete Sewer Pipe (C 14 – 34 T) | 118 | 5 |
| Reinforced-Concrete Sewer Pipe (C 75 – 34 T) | 119 | 4 |
| Ethylene Glycol Mono Butyl Ether (D 330 – 32 T) | 70 | 0 |
| Ethylene Glycol Mono Ethyl Ether (D 331 – 32 T) | 70 | 0 |
| Acetate Ester of Ethylene Glycol Mono Ethyl Ether (95 to 96 per cent Grade) (D 343 – 32 T) | 70 | 0 |
| Titanium Barium Pigment (D 382 – 34 T) | 94 | 1 |
| Titanium Calcium Pigment (D 383 – 34 T) | 93 | 0 |
| Creosote (D 390 – 34 T) | 97 | 1 |
| Creosote Coal-Tar Solution (D 391 – 34 T) | 88 | 3 |
| Holland Cloth (D 376 – 34 T) | 59 | 1 |
| *Tentative Method of:* | | |
| Chemical Analysis of Magnesite Refractories (C 18 – 34 T) | 63 | 0 |
| Test for Ductility of Bituminous Materials (D 113 – 32 T) | 139 | 4 |
| Sampling Coke for Analysis (D 346 – 33 T) | 116 | 0 |
| *Tentative Definitions of:* | | |
| Terms Relating to Refractories (C 71 – 34 T) | 73 | 0 |

All of these new and revised standards have been published in the 1935 Supplement to the Book of A.S.T.M. Standards. The Supplement has been sent to each member, and each purchaser of the Book of Standards so that his volume will be up-to-date.

## Several Publications Issued

A number of the publications which were on the schedule for 1935 as outlined in the July BULLETIN have now been printed and distributed and excellent progress is reported on the remaining publications to be issued before the close of the year. Several of the special compilations of A.S.T.M. standards pertaining to particular industrial fields have been completed, these being sponsored by the various standing committees in charge of the standards. Included in this group are the compilations on petroleum products and lubricants, electrical insulating materials, preservative coatings (paints, varnishes, lacquers and paint material), textile materials, and rubber products. The last-named is being issued for the first time to meet the need for a laboratory standard test manual.

The annual reports of four standing committees which have extensive research and testing programs under way on corrosion testing have been published as separate reprints from the current *Proceedings* in which they will appear. These reports pertain to the following fields: iron and steel, non-ferrous metals and alloys, die-cast metals and alloys, and screen wire cloth.

The Symposium on Paint and Paint Materials comprising 15 technical papers presented at the March Regional Meeting and the Symposium on the Place of Materials in Automobile Roads and Rides consisting of the three papers given at the annual meeting in Detroit have also been published. A comprehensive paper by J. E. Burchard on "The Role of Materials in Modern Housing" presented at the annual meeting has been published and copies are available.

Satisfactory progress is being made on the preparation of the 1935 Book of A.S.T.M. Tentative Standards, which is the only volume containing all the 290 tentative specifications and methods of test. This will be ready for distribution in the near future. The 1935 *Proceedings*, which it is estimated will aggregate about 2100 pages, will be issued late in the year and sent to all members.

## Criticism of Proposed Standards

One of the basic principles underlying the development of standards by A.S.T.M. is that *everyone* interested in a standard shall have an opportunity to participate in its development—by expressing viewpoints in committees and before the Society, or presenting data relevant to the subject considered or in other ways.

During September and October, the tentative standards which were approved at the annual meeting or by Committee E-10 on Standards (see page 3) are edited and published. In order to stimulate comment and criticism these are brought to the attention of trade journals and associations and other organizations interested, and of course, their widespread use in the various phases of production and consumption tend to stimulate comment.

Members of the Society realize that one purpose in issuing proposed standards in tentative form is to elicit constructive criticism and comment, of which the standing committees in charge take due cognizance before recommending adoption as a formal standard. Each A.S.T.M. member can be of service by reviewing critically tentative standards in which he or his company is interested or by bringing them to the attention of other interested parties, to the end that finally a standard will be adopted which will represent a true consensus of industry, be practical, complete and authoritative. Comments should be forwarded to Society Headquarters.

# District Committee Activities

## Several Local Meetings Planned

IN previous BULLETINS there has been announcement of the reorganization of the district committees in accordance with the new charter developed by the Executive Committee and some of the activities of the committees have been outlined. The personnel of the new district committees was also reported.

It is planned that the BULLETIN shall from time to time present news accounts of the activities of the various district committees and since the work of some of these groups is well under way, brief statements are presented below of work already accomplished and in the case of certain district committees where future meetings, etc., have been outlined these are mentioned.

In but one or two cases the various committees have been formally organized and even where formal organization meetings have been postponed because of circumstances, work is under way through correspondence and informal conferences of the officers so that activities are moving along on all fronts.

The Society looks to the district committees to help further its work in various ways, to stimulate and maintain interest in standardization and research work and to elicit additional support of it and wider participation in the program on the part of new members. Meetings sponsored by the various district committees, several of which are mentioned below, will provide an opportunity for members to get together in the various localities and to hear prominent speakers on subjects which are of interest to the Society's field of work and at the same time to discuss the work of the Society committees.

### Chicago

Several meetings of the Chicago District Committee have been held. One of the first activities was to communicate with each A.S.T.M. member in the Chicago area urging attendance at the annual meeting in Detroit. In September the committee took part in the organization meeting of an inter-society relations committee at which representatives of several other Chicago societies were present. Closer cooperation and greater activity between the various local society sections was discussed and, as a preliminary step, announcements of programs of all the participating societies will be sent to each group so that their membership may be invited to join in all meetings.

The District Committee is planning a meeting during the next few months at which it is planned to have an address by a prominent speaker on some subject of general interest to the members and at which President Vassar and Secretary-Treasurer Warwick will be present to meet the members and discuss phases of Society work.

On March 12 a joint meeting is planned with the Chicago Chapter, American Society for Metals, at which Prof. A. V. deForest of Massachusetts Institute of Technology will speak on "Unusual Methods of Inspection." Further details of this meeting will be announced in the BULLETIN.

Members in the Chicago District assisted in arrangements for handling the Society booth in the National Metals Show in which there was a display of general Society activities and features of the work of Committee B-6 on Die-Cast Metals and Alloys.

### Cleveland

The Cleveland District Committee sponsored a meeting on March 15 of the district members of A.S.T.M. and the Cleveland District of the National Association of Purchasing Agents. At this dinner meeting, Vice-President Fieldner gave an address on "What A.S.T.M. Can Do for the Purchasing Agents." The meeting was well attended as a result of close cooperation between the Cleveland representatives of the two national organizations.

The committee is planning a local meeting late in January, 1936, which will be devoted to a discussion of pearlitic malleable irons. All those interested in malleable iron, especially members of the American Foundrymen's Association and American Society for Metals, will be invited to the meeting. Further details will be given concerning the date and place when the district committee reaches final decision on these matters.

### Detroit

While the Detroit Committee has not held a formal organization meeting, its personnel has been expanded in accordance with the new district committee charter and reorganization will shortly be accomplished.

The Detroit District Committee sponsored the first regional meeting held by the Society in 1930 and since that time has held several very successful local meetings in which they were joined by Detroit sections of other societies.

Much of the credit for the outstanding success of the 1935 annual meeting in Detroit is attributed to the splendid way in which the committee handled numerous details. In many ways, the variety of industrial trips available to members, extensive ladies' entertainment program and certain technical features, the meeting was an outstanding one.

### New York

The first local meeting sponsored by the reorganized New York District Committee was held in March in connection with a meeting of A.S.T.M. Committee D-9 on Electrical Insulating Materials. Prof. Hugh S. Taylor, Princeton University, addressed the large number of A.S.T.M. members and their associates and guests who were present on the subject "Chemistry of Deterioration."

The Society participated in the 1935 Inform-a-Show held in New York under the auspices of the National Association of Purchasing Agents, the New York District Committee taking charge of the booth during the exposition. This cooperative effort enabled the Society to broaden its contacts with purchasing executives.

A meeting in the near future will be sponsored by the New York group to be featured by a discussion on the subject of plastics. Mr. Carlton Ellis, an outstanding authority in this field, will be the principal speaker and a talk will be given by one other technologist. Further announcements will be made.

### Philadelphia

Shortly after the Philadelphia District Committee was organized it sponsored the 1935 A.S.T.M. Regional Meeting. Much of the credit for the success of this meeting, the technical feature of which was the Symposium on Paint and Paint Materials, is due the committee.

The district committee is planning a joint meeting with the Engineers Club of Philadelphia for January 21, 1936 on the subject of Industrial Fuels. Papers by recognized authorities on coal, coke, fuel oil, manufactured gas and liquefied gas will be presented in afternoon and evening sessions. These papers in effect will comprise a symposium discussing each of the five fuels from those angles of special interest to the consumer, such as utilization along most effective and economic lines, tests and specifications and their significance with respect to various uses, and the like. An informal dinner will be held between the sessions. Invitations to attend will be extended to the Philadelphia sections of various national societies.

### Pittsburgh

The district committee which has been reorganized in Pittsburgh has had several meetings and made substantial progress in its program of work.

The 1936 A.S.T.M. regional meeting to be held in Pittsburgh will be sponsored by the committee. The technical feature of the meeting is to be a symposium on high-strength constructional metals. Further details of the papers and authors and time of the sessions in which the symposium will be held will be announced in the December and January BULLETINS.

The committee is undertaking a study of student activities in relation to Society work and will submit recommendations for action to help acquaint students with the Society and to promote student membership. The committee also has under way a survey of the principal industries in the Pittsburgh district to determine whether they are adequately represented in the Society through membership so that they can keep in close touch with A.S.T.M. work which would be of direct interest.

### Southern California

At the reorganization meeting of the Southern California Committee, a program of topics suggested by members of the committee was discussed. As a result of this it has been decided to hold an open dinner meeting in the next few months aimed to stimulate Society activities in this district. Following meetings which the committee plans and when its work has developed further it is hoped an A.S.T.M. regional meeting may be considered for this section.

The members of the committee are studying certain special local committee projects which do not fall within the functions of A.S.T.M. standing committees or the activities of other technical societies. In this connection the district committee members are studying the new and revised standards approved by the Society this year, reviewing them from the standpoint of the interest of the West Coast.

### Northern California

With a membership not as extensive as in other centers and scattered over a considerable geographical area, the Northern California District Committee has a number of problems which do not arise in connection with the activities of groups in other industrial centers, but the district committee is giving consideration to reorganization under the new charter and to developing the most appropriate ways in which A.S.T.M. work can be furthered in the Northern California area.

The committee is giving particular attention to ways and means by which the needs of the industries on the West coast which differ in some cases from those in the Mid-West and Eastern sections of the country can be considered most efficiently by the A.S.T.M. standing committees in their standardization and research work.

## Schedule of Meetings

| DATE | COMMITTEE | PLACE |
|---|---|---|
| November 4 | E-6 on Papers and Publications | Philadelphia |
| November 7–8 | D-9 on Electrical Insulating Materials | New York City |
| November 11 | D-2 on Petroleum Products and Lubricants, (Informal Meeting) | Los Angeles |
| December 2–3 | Joint Committee on Concrete and Reinforced Concrete | Washington |
| December 3 | Committee C-1 on Cement | Washington |
| December 5 | Joint Committee on Effect of Temperature | New York City |
| December 7 | Committee C-9 on Concrete and Concrete Aggregates | Washington |
| March 4, 1936 | REGIONAL MEETING | Pittsburgh |
| March 2–6 | SPRING GROUP MEETINGS OF COMMITTEES | Pittsburgh |
| June 29–July 3 | ANNUAL MEETING | Atlantic City |

## 32 Student Members at Pratt Institute

Recently 32 students in the Industrial Chemical Engineering course at Pratt Institute, Brooklyn, became student members of the Society. Arrangements for the student memberships were made by Dr. Tod G. Dixon of the Institute. Fifteen of these students are obtaining both parts of the Book of A.S.T.M. Standards, the remaining 17 purchasing Part II, Non-Metallic Materials—both groups using the books in their course in Technical Analysis. The Book of Standards and all other A.S.T.M. publications can be purchased for student use at greatly reduced prices.

Universities or engineering schools where there are two or more student members are listed below. In addition to these there are a number which have one student member.

| | |
|---|---|
| Ohio State University | 54 |
| Rensselaer Polytechnic Institute | 39 |
| Pratt Institute | 32 |
| Detroit Institute of Technology | 9 |
| Grove City College | 9 |
| Massachusetts Institute of Technology | 9 |
| University of Pennsylvania | 8 |
| University of Washington | 8 |
| Cornell University | 7 |
| University of Illinois | 6 |
| Iowa State College | 3 |
| Lehigh University | 3 |
| University of Kansas | 3 |
| University of Idaho | 2 |
| Missouri School of Mines and Metallurgy | 2 |
| New York University | 2 |

### Student Membership Prize Awards

In a number of the above schools, the A.S.T.M. student membership prize award plan is in effect. By this, certain students who have shown outstanding ability in courses involving engineering materials, are awarded as a prize a student membership in the Society, the annual dues of $1.50 being contributed by A.S.T.M. members. All student members may choose any one of the special compilations of A.S.T.M. standards and are furnished the Year Book, preprints and BULLETIN. Thus they receive valuable technical information and are acquainted directly with A.S.T.M. activities.

Any member of the Society who may wish to underwrite student memberships as prize awards in their own alma mater or other schools are invited to write A.S.T.M. Headquarters. Full information will be sent.

# Current Reports on A.S.T.M. Research Activities

A REVIEW of the various research projects on which the standing committees of the Society are engaged appeared in the list of "A.S.T.M. Research Activities (1933–1934)" which was issued as a Supplement to the October, 1934, BULLETIN. In their annual reports this year the committees have recorded significant progress made on a number of these projects. In addition, new projects have been undertaken. In order to bring the 1934 list up to date the following summaries have been prepared covering new investigations and those projects on which the committees have presented additional information and data.

In accordance with the arrangement used in the 1934 list the summaries have been divided into two parts: Part I—Research on Properties of Materials, and Part II—Research on Methods of Testing.

These statements provide information not otherwise generally available, except after laborious reference to the current reports of the standing committees. Reference is made in every case to the latest report on each project. Reports now appearing in preprints prepared for the 1935 annual meeting will be published in the 1935 *Proceedings*, available in December.

## Part I—Research on Properties of Materials

### Corrosion of Ferrous and Non-Ferrous Metals

**Atmospheric Corrosion Tests of Galvanized Sheets** (Committee A-5).—Comprehensive field corrosion studies at five test locations, representing various atmospheric conditions, on Nos. 16, 22 and 28 gage sheets both uncoated and galvanized with various weights of zinc coatings. For report of failures of all galvanized sheets after 7-yr. exposure at Altoona, Pa., see *Proceedings*, Vol. 34, Part I, p. 159 (1934). Current report records failures of all galvanized sheets at Brunot Island, Pittsburgh, Pa., after 8½-yr. exposure; also records failures observed at Sandy Hook, N. J., test location, see reprint, 1935 Report of Committee A-5.

**Atmospheric Corrosion Tests of Metallic-Coated Hardware, Structural Shapes, Tubular Goods, Etc.** (Committee A-5).—Comprehensive field corrosion studies at five test locations, representing varying atmospheric conditions, on metal products coated with the following 8 types of coatings by commercial operations: Hot-dipped zinc, electrodeposited zinc, sherardized (zinc) applied in gas-heated drum, sherardized (zinc) applied in electrically heated drum, electrodeposited cadmium, hot-dipped aluminum, hot-dipped lead (Amaloy), parkerized. Results reported of inspections of the specimens of coated hardware, structural shapes, tubular goods at all test locations after 2-yr. and 4-yr. exposures, respectively, see *Proceedings*, Vol. 31, Part I, p. 184 (1931); Vol. 33, Part I, p. 154 (1933). For results of inspections after 6-yr. exposure, see reprint, 1935 Report of Committee A-5.

**Total Immersion Tests on Uncoated Sheets** (Committee A-5).—Tests on bare (uncoated) steel and iron sheets immersed in acid mine water at Calumet, Pa., in saline water at Annapolis, Md., in city water at Washington, D. C., in sea water at Key West, Fla., Portsmouth, N. H., and Port Arthur, Tex.; also tests in open sea water to determine the effect of corrosion on copper-steel pipe and on steel ship plate, with and without copper, when riveted with rivets of iron and steel with varying copper contents.

Tests completed at Calumet in 1921, at Washington in 1928, and at Annapolis in 1930, see *Proceedings*, Vol. 21, p. 157 (1921); Vol. 28, Part I, p. 160 (1928); Vol. 30, Part I, p. 223 (1930), respectively. All No. 22 gage sheets at Portsmouth and Key West have failed; for detailed record of failures, see *Proceedings*, Vol. 32, Part I, p. 105 (1932); Vol. 33, Part I, p. 144 (1933). For detailed record of failures of No. 16 gage sheets at Key West, Fla., and Portsmouth, N. H., see reprint, 1935 Report of Committee A-5.

**Accelerated Corrosion Tests** (Committee A-5).—Study of various methods of accelerated corrosion tests, with particular reference to their application to metallic-coated products. Related to the atmospheric corrosion tests mentioned above. Comparative studies made of revised Preece test procedure; tests for thickness of electrodeposited coatings being studied; consideration being given to determining weight of zinc coatings on heavy hardware and on irregularly shaped parts. See reprint, 1935 Report of Committee A-5.

**Investigation of Electroplated Coatings on Steel** (Joint Committee of American Electro-Platers' Society, National Bureau of Standards and A.S.T.M.).—An extension of tests of plated coatings on hardware mentioned above. Specimens plated with zinc, cadmium, copper, nickel, chromium or combination of these metals, coatings produced under controlled, defined conditions. Samples exposed in six outdoor locations with parallel laboratory and accelerated exposure tests. For summary of progress of these studies, see *Proceedings*, Vol. 33, Part I, p. 164 (1933); also Vol. 34, Part I, p. 166 (1934). Specifications for electrodeposited coatings of zinc, cadmium, and nickel and chromium on steel have been prepared, see reprint, 1935 Report of Committee A-5.

**Atmospheric Corrosion of Non-Ferrous Metals and Alloys** (Committee B-3).—Comprehensive field corrosion studies at 9 test locations, representing varying atmospheric conditions, on 24 non-ferrous metals and alloys in the form of rolled sheet or strip. Corrosion over 25-year period to be measured. Data reported showing changes in weight and tensile properties after 1-year exposure of the 24 non-ferrous metals and alloys; also visual inspection results and meteorological data at test locations during exposure period, see *Proceedings*, Vol. 33, Part I, p. 234 (1933). Results of similar tests after 3-year exposure reported, see reprint, 1935 Report of Committee B-3.

**Corrosion of Non-Ferrous Metals and Alloys in Liquids—Field Tests** (Committee B-3).—Testing in the field, metals in several common solutions under conditions representative of those in use in industrial processes. Metals used are those which may reasonably be expected to prove practicable for use in each process. The four solutions to be used are: NaOH, HCl, NaCl and $H_2SO_4$. Data reported on metals exposed to sodium chloride solutions, sodium hydroxide and sulfuric acid, see reprint, 1935 Report of Committee B-3.

**Galvanic and Electrolytic Corrosion of Non-Ferrous Metals and Alloys** (Committee B-3).—Study of galvanic effects (that is, effect of contact between dissimilar metals upon the rate of corrosion of each) at 9 test locations representing varying atmospheric conditions on galvanic couples of metals, used commercially under conditions of tests, and electrolytic action on couples of metals and alloys in hot water, sea water, NaOH and $H_2SO_4$. Includes study of stainless steel in contact with various non-ferrous metals. Record of corrosion for the first 1-year period on couple combinations of zinc, aluminum, lead, tin, nickel, copper and mild steel at 9 test locations reported, see *Proceedings*, Vol. 34, Part I, p. 236 (1934). Results of similar tests after 3-year exposure reported, see reprint, 1935 Report of Committee B-3.

**Relative Life of Various Screen Wire Cloths** (Committee D-14).—To determine the relative life of the higher-grade screen wire cloths when exposed to various atmospheric agencies such as corrosion and wind, as they exist in different localities and climates, so that purchasers of such material may make an economic selection best suited to their particular conditions. For report of failures after 4-year exposure see *Proceedings*, Vol. 30, Part I, p. 863 (1930). Current report contains summary of essential details and results of exposure tests on 7 non-ferrous compositions after 9-year period at Pittsburgh, Pa., Portsmouth, Va., Cristobal, C. Z., and Washington, D. C., reported by G. W. Quick, "Atmospheric Exposure Tests on Non-Ferrous Screen Wire Cloth," see reprint, 1935 Report of Committee D-14.

### Ferrous and Non-Ferrous Metals, General

**Correlation of Properties of Iron Castings and Test Bars** (Committee A-3).—A study of the relationship of properties of iron castings with the properties of coupons attached to castings and of separately cast test bars. Cooperative study of test bars in connection with the specifications for gray-iron castings resulted in securing test data permitting of revisions in the specifications; see preprint, 1935 Report of Committee A-3.

**Effect of Temperature on the Properties of Metals** (Joint Research Committee of A.S.M.E. and A.S.T.M.).—The scope of these investigations includes (1) an accumulation of service data of various metals under extreme temperatures; (2) studies leading to standardization procedure for testing metals at high and low temperatures; and (3) outlining and fostering new research work in this field, giving consideration first to the various metals and alloys intended for high-temperature service in power stations, oil refineries, etc.

Tests for short-time and for long-time (creep) high temperature tension tests of metallic materials developed; results of tests and other data in explanation of the test methods reported, see *Proceedings*, Vol. 33, Part I, pp. 996, 1004 and 209 (1933). Current report contains revision of long-time (creep) high temperature test methods and report on effect of long-time heating with and without stress on impact resistance of 18 per cent chromium, 8 per cent nickel steel (K 9 and K 19 steel), see preprint, 1935 Report of Joint Committee.

**Fatigue of Metals** (Research Committee).—For statements of present status of knowledge of fatigue and corrosion-fatigue of metals, see *Proceedings*, Vol. 30, Part I, p. 259 (1930); Vol. 32, Part I, p. 139 (1932). Use of the X-ray as a means of detecting impending fatigue failure under consideration. Current report contains notes on fatigue tests on rotating-beam testing machines, see preprint, 1935 Report of Research Committee.

**Investigation of Aluminum and Zinc-Base Die-Casting Alloys** (Committee B-6).—An extensive investigation of die-casting alloys as to composition, strength, hardness, brittleness and resistance to corrosion; also finishing properties of die castings. Studies cover commercial compositions of aluminum-base and zinc-base alloys. Purpose of investigation is to supply dependable information on the properties of alloys suitable for die castings and the formulation of specifications based either on the alloys tested or on alloys developed as a result of the investigation. Specifications have been issued. Current report includes results of 5-yr. exposure tests of 12 aluminum and 10 zinc alloys cast by several producers and exposed at 6 outdoor and 4 indoor locations. Data presented covers chemical analysis, tension, impact and expansion tests; also description of photographic inspections of specimens of all alloys after 4-yr. outdoor exposure at 6 outdoor locations. Report also includes investigation of aluminum die-casting alloys of the 5 and 12 per cent silicon types. See reprint, 1935 Report of Committee B-6.

### Masonry Materials

**Weathering Characteristics of Masonry Materials.**—Study of the weathering characteristics of such masonry materials as brick, concrete, hollow masonry building units, slate and building stone.

Current report of Committee C-3 on Brick contains report on weathering and porosity of brick and papers by D. E. Parsons, "Comparison of Natural Weathering with Laboratory Tests of Clay Brick," and by J. W. McBurney, "The Relation of Freezing and Thawing Resistance to Physical Properties of Clay and Shale Building Brick," see preprint, 1935 Report of Committee C-3.

### Paint and Paint Materials

**Accelerated Tests for Protective Coatings** (Committee D-1).—A study of accelerated weathering tests for such protective coatings as house paints, enamels, varnishes, lacquers and metal protective finishes; also correlation of the results with outdoor exposure tests. Specifications prepared for wood panels used in weather tests of paints and varnishes. Progress reported in cooperative tests on varnishes and lacquers, see preprint, 1935 Report of Committee D-1.

## Part II—Research on Methods of Testing

### Magnetic Testing

**Tests at High Magnetizing Forces** (Committee A-6).—Development of test methods operating at high magnetizing forces in order to test materials such as the new permanent magnet materials which have coercive forces of several hundred oersteds. The saturation permeameter and the simplex Super-H Adapter are proposed as suitable, pending further cooperative tests, see preprint, 1935 Report of Committee A-6.

**Core Loss Tests of Electric Sheet at High Inductions** (Committee A-6).—Study of tests for core loss of laminated materials at inductions higher than 14 kilogausses. Series of check samples being studied in round-robin tests, see preprint, 1935 Report of Committee A-6.

### Cement

**Chemical Analysis of Cement** (Committee C-1).—Study of improved and shorter methods for chemical analysis of cement. Present studies include tests for iron, manganese and phosphoric acid in portland cement. Two rapid methods for determining magnesia in cement completed for inclusion in tentative methods issued in 1934, see preprint, 1935 Report of Committee C-1.

### Varnish

**Properties and Tests of Varnishes** (Committee D-1).—Studies of the physical and chemical properties of varnishes. Procedures developed for skinning test, alkali resistance and determining acid number of oleo-resinous varnishes; see preprint, 1935 Report of Committee D-1.

### Petroleum Products and Lubricants

**Oxidation at High Temperatures** (Committee D-2).—Study of a high-temperature oxidation test whose function is to produce in an oil, as rapidly as possible, changes of the same kind as would normally take place during long periods of actual service. Study of reproducibility of Sligh oxidation

(*Concluded on page 13*)

## Members' Use of This Bulletin

Despite a heavy falling off in membership during the depression years, with corresponding loss in income, the Society's work has been carried forward without material curtailment. While 1935 shows a gain in membership, for the first time in five years, the present membership situation when analyzed from the viewpoint of continuing the normal upward trend of A.S.T.M. research and standardization work indicates there is real necessity for intensive effort to secure new members. *In this endeavor each A.S.T.M. member can and should have a part.*

A recent survey of membership representation from certain fields in which A.S.T.M. is carrying out active work uncovers this fact: there are many companies who are directly interested in the work and who benefit from it, which are not listed in the Society Year Book—nor are there any technical executives of these companies represented in the roll of members. This is cited to show that there is an abundance of prospective memberships.

While personal contacts are by far most effective, a letter, phone call or *brief note attached to a copy of this issue of the* BULLETIN *may help greatly.* It is suggested that each member when he has reviewed his copy pass it along to someone with whom he has contacts, with a membership suggestion.

An application blank carrying a brief description of A.S.T.M. and outlining certain membership assets is enclosed with each member's copy. This together with the several articles in the BULLETIN on A.S.T.M. developments may offer a good "sales message."

## Standards Approved by A.S.A.

A number of A.S.T.M. standards and tentative standards have been approved for the first time by the American Standards Association and in addition approval has been given to several revisions adopted by the Society in specifications and tests which had previously been acted upon by the A.S.A. The list of newly approved standards follows:

| Standards | Designation A.S.T.M. | A.S.A. |
|---|---|---|
| *Specifications for:* | | |
| Zinc-Coated (Galvanized) Iron or Steel Telephone and Telegraph Line Wire | A 111 – 33 | G8.3 – 1935 |
| Zinc-Coated (Galvanized) Iron or Steel Tie Wires | A 112 – 33 | G8.4 – 1935 |
| Zinc-Coated Iron or Steel Chain-Link Fence Fabric Galvanized After Weaving | A 117 – 33 | G8.5 – 1935 |
| Zinc-Coated (Galvanized) Iron or Steel Wire Strand (Cable) | A 122 – 33 | G8.6 – 1935 |
| Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses | A 120 – 34 T | G8.7 – 1935 |
| *Methods of:* | | |
| Test for Distillation of Crude Petroleum | D 285 – 33 | Z11.32 – 1935 |
| Sampling Petroleum and Petroleum Products | D 270 – 33 | Z11.33 – 1935 |
| Test for Color of Lubricating Oils by Means of A.S.T.M. Union Colorimeter | D 155 – 34 T | Z11.34 – 1935 |
| Test for Color of Refined Petroleum Oil by Means of Saybolt Chromometer | D 156 – 34 T | Z11.35 – 1935 |
| Test for Gum Content of Gasoline | D 381 – 34 T | Z11.36 – 1935 |
| Test for Knock Characteristics of Motor Fuels | D 357 – 34 T | Z11.37 – 1935 |
| Test for Sulfur in Petroleum Oils by Lamp Method | D 90 – 34 T | Z11.38 – 1935 |
| Tent. Standard Viscosity-Temperature Chart for Liquid Petroleum Products | D 341 – 32 T | Z11.39 – 1935 |

## Figures Often Lie (?)—But

While it is frequently said that "figures often lie" (in other words, statistics may create the wrong impression!) this risk is being taken here because many members may be interested in a table showing numerically the number of actions on standards and tentative standards for certain years. In the accompanying table, 1931, 1934 and 1935 have been selected for comparison. While 1929 and 1930 could have been chosen, there was no Committee E-10 procedure established in 1929 and 1930 was, of course, a Book of Standards year. The three years for which figures are given would seem to be comparable from the standpoint of Society procedure, and *by and large the table does indicate the respective results from A.S.T.M. standardization work.*

| Recommendations | 1931 | | 1934 | | 1935 | |
|---|---|---|---|---|---|---|
| | Annual Meeting | E-10 Action | Annual Meeting | E-10 Action | Annual Meeting | E-10 Action |
| New Tentative Standards | 36 | 15 | 32 | 22 | 45 | 32 |
| Tentative Revisions of Standards | 29 | 0 | 27 | 13 | 28 | 6 |
| Revisions of Tentative Standards | 26 | 7 | 39 | 26 | 49 | 17 |
| Tentative Standards Adopted as Standard | 19 | .. | 37 | .. | 20 | .. |
| Revisions of Standards Adopted as Standard | 15 | .. | 13 | .. | 17 | .. |
| Standards and Tentative Standards Withdrawn | 1 | .. | 6 | .. | 12 | .. |
| Total | 126 | 22 | 154 | 61 | 171 | 55 |

Perhaps of most significance are the figures on new tentative standards indicating materials covered for the first time by A.S.T.M. specification requirements. An analysis of this table will indicate that work on A.S.T.M. standards is definitely increasing.

## I.P.T. Standards for Petroleum

The Institution of Petroleum Technologists, London, England, through the work of its chemical standardization committee has issued the third edition of its publication "Standard Methods for Testing Petroleum and its Products." This compilation gives in complete form the 63 standard methods of testing which have been developed and includes ten tentative methods as well as two specifications. Where possible, the tests have been kept in accord with those of A.S.T.M., and thus some measure of international agreement has been attained. In those cases where complete agreement has not been possible on account of modifications necessary to meet British practice, this has been indicated by the addition of the word "modified" to the A.S.T.M. serial designation.

The latest edition of this book is much more extensive than the previous ones and in the interest of convenience the tests have been arranged in alphabetical order.

Copies of this 228-page publication in cloth cover can be obtained from A.S.T.M. headquarters at $1.85, postage prepaid. From time to time publications issued by the I.P.T. will be announced in the BULLETIN as a service to A.S.T.M. members. A reciprocal agreement is in effect between the two organizations whereby copies of A.S.T.M. publications of interest to I.P.T. members can be obtained from their office, Aldine House, Bradford St., London, W. C. 2.

## A.S.T.M. Research Activities

(*Continued from page 11*)

test. Results reported of series of tests on three different oils; also test method for oxidation number of lubricating oils by Sligh method published as information, see preprint, 1935 Report of Committee D-2.

**Flash Point** (Committee D-2).—Consideration is being given to the determination of a flash point method for viscous liquids, especially cut-back asphalts and suspensions of solids. Proposed modification of standard test for flash point by means of Pensky-Martens closed tester issued as tentative; revised flash test by Tag closed tester also developed; see preprint, 1935 Report of Committee D-2.

**Corrosion Tests for Lubricating Oils** (Committee D-2).—Substantially as covered by title. Present program involves development of laboratory test methods which will correlate with road service. Consideration being given to laboratory corrosion tests in which the bearing metal is heated in the lubricant under test at an elevated temperature for a definite period of time and laboratory bearing tests in which bearings are operated at loads, speeds and temperatures comparable to service. See preprint, 1935 Report of Committee D-2.

### Bituminous Roofing Materials

**Accelerated Weathering Tests of Bituminous Roofing Materials** (Committee D-8).—Study of an electrical accelerated weathering test applicable to roofing. Proposed draft of an accelerated weathering test for bituminous materials published as information, see *Proceedings*, Vol. 33, Part I, pp. 379, 381 (1933). Further data obtained on effect of accelerated weathering cycle as compared with outdoor weathering, see preprint, 1935 Report of Committee D-8.

### Coal and Coke

**Pulverizing Characteristics of Coal** (Committee D-5).—Investigation of laboratory methods to determine comparative pulverizing characteristics of different coals in connection with their commercial pulverization as powdered coal. Coal grindability tests have been made at 5 laboratories, using different methods on a series of 5 coals of wide range in grindability varying from a friable semibituminous to a hard anthracite. As result of these studies two test methods have been developed for grindability of coal, namely, the ball-mill and Hardgrove-machine methods, see preprint, 1935 Report of Committee D-5.

### Insulating Materials

**Tests of Cable Oils** (Committee D-9).—Studies and development of tests for cable oils including sampling and conditioning of samples; aging and oxidation of cable oils primarily to study electric stability of aged and oxidized oils; power-factor, dielectric-constant and resistivity tests of cable oils; volumetric gas content of insulating oils, and viscosity determinations. See preprint, 1935 Report of Committee D-9.

### Rubber Products

**Life Test for Rubber Products** (Committee D-11).—Accelerated aging tests of various types of rubber compounds in comparison with natural aging of the same samples. Methods of test for accelerated aging of vulcanized rubber developed; see compilation of "A.S.T.M. Standards on Rubber Products" (October, 1935). Method of test for effect on rubber compounds of air at elevated pressures and temperatures now under consideration.

**Dynamic Fatigue Testing for Rubber Products** (Committee D-11).—To study the general field indicated in title and particularly as applied to repeated extension, compression, bending and similar tests. Studying separation tests on plied rubber and fabric materials. Methods including three different types of apparatus and procedures for flexing tests of rubber products developed, see compilation of "A.S.T.M. Standards on Rubber Products" (October, 1935).

**Adhesion of Rubber to Metal** (Committee D-11).—Study, development and standardization of methods for measuring the adhesive strength of rubber to metal with particular reference to such applications in the automotive industries. Methods of test for adhesion of vulcanized rubber to metal developed, see compilation of "A.S.T.M. Standards on Rubber Products" (October, 1935).

### Textile Materials

**Methods of Testing Cotton** (Committee D-13).—Based upon fundamental research of cotton fiber quality such as that of the cotton fiber laboratories of the U. S. Bureau of Agricultural Economics, on studies of length, strength, fineness, maturity and color of raw cotton, work is being undertaken on specifications and suitable methods of measurement. General test methods for determining length, length distribution, fineness immaturity count and strength of cotton fibers developed; see compilation of "A.S.T.M. Standards on Textile Materials" (October, 1935).

**Tests of Rayon Fabrics** (Committee D-13).—Studies of tension test for wet specimens, cloth fraying test, washability or launderability test; also methods to determine pulling at seams, slippage of fabrics, and oil and moisture contents of oiled rayons. Methods developed for identification of different types of rayon, for strength of rayon woven fabric when wet, for shrinkage in laundering and test for slippage of woven rayon broad goods; see compilation of "A.S.T.M. Standards on Textile Materials" (October, 1935).

**Tests of Wool and Its Products** (Committee D-13).—Substantially as covered by title. Present considerations cover tests for felt, a wear test procedure for pile floor coverings and test methods for woolen and worsted fabrics. Method of test for woolen and worsted yarns have been issued; also tests for estimating fineness of wool in loose form, methods for testing pile floor coverings, and procedure for estimating scoured content of grease wool, see compilation of "A.S.T.M. Standards on Textile Materials" (October, 1935).

**Tests for Bleaching, Dyeing and Finishing of Textiles** (Committee D-13).—Consideration being given to test methods for fastness to laundering and domestic washing of dyed or printed silk or rayon, and dyed or printed cotton; a method for determining amount of sizing and finishing materials in cotton fabrics, and a test for the fastness of dyed fabrics to light. See preprint, 1935 Report of Committee D-13.

### Miscellaneous

**Study of Very Finely Sized Material** (Committee E-1).—Development of methods of procedure for particle size determination of particulate substances such as powdered coal, cement, pigments, by means of liquid elutriation and direct microscopic observation using fillar micrometer. Current report describes cooperative series of tests on particle size measurement by the microscopic count method; also a proposed method of measurement of average particle diameter of sub-sieve particulate substances by dark field methods. Copies available in mimeographed form.

## Effect of Temperature Committee Reports

Two of the progress reports which are to be presented at the meeting in New York on December 5 of the Joint A.S.M.E.-A.S.T.M. Research Committee on Effect of Temperature on the Properties of Metals have been printed by the A.S.M.E. and members of A.S.T.M. can obtain copies of these without charge by writing to A.S.T.M. Headquarters. The reports are as follows:

Seizure of Metals at Elevated Temperatures and Methods of Testing for Propensity Toward Seizure.

Cooperative Study of a Stable 18:8 Without Stabilizing Additions.

## New Members to October 25, 1935

The following 43 members were elected from July 24 to October 26, 1935:

*Company Members (5)*

BETTER FABRICS TESTING BUREAU, Frank Stutz, President, 225 W. Thirty-fourth St., New York City.
EMULSIFIED ASPHALT PRODUCTS CO., F. M. Whitfield, Vice-President, Box 1429, Knoxville, Tenn.
INDIA TIRE CO., H. S. Karch, Chief Chemist, Mogadore, Akron, Ohio.
PUBLICKER COMMERCIAL ALCOHOL CO., J. Stein, Chemist, 260 S. Broad St., Philadelphia, Pa.
SOUTHERN MINERAL PRODUCTS CORP., G. E. Walker, Technical Director, Piney River, Va.

*Individual and Other Members (34)*

AUSTRALIA, DIRECTOR-GENERAL, POSTS AND TELEGRAPHS, Central Office, Treasury Gardens, Melbourne, C. 2, Australia.
BEVIN, SYDNEY, Chief Engineer, Fiske Bros. Refining Co., Box 566, C. S., Toledo, Ohio.
BILLINGS, LYMAN, Chief Chemist, Stillwater Worsted Mills, Box 555, Harrisville, R. I.
BRANA, S. B., Engineer, Suarez 1575, Buenos Aires, Argentina.
BINGHAMTON, CITY OF, BUREAU OF ENGINEERING, J. A. Giles, City Engineer, Municipal Bldg., Binghamton, N. Y.
BLAUMAN, L. W., President, Michigan Die Casting Co., 253 St. Aubin Ave., Detroit, Mich.
BRITISH MUNICIPAL GOVERNMENT, PUBLIC WORKS DEPT., C. N. Joyner, Deputy Municipal Engineer, Tientsin, China.
BROWN, G. D., Plant Superintendent, Florida Portland Cement Co., Box 1528, Tampa, Fla.
BUDD, RALPH, President, Chicago, Burlington & Quincy Railroad Co., 547 W. Jackson Boulevard, Chicago, Ill.
BUSSOW, CARL, Chief Chemist, A. W. Dow, Inc., 801 Second Ave., New York City.
DEMOULINS, HENRY, Refinery Superintendent, A.G.W.I. Petroleum Corp., Fawley, Hampshire, England. For mail: Copthorne, Fawley, Hampshire, England.
FERRAND, LEON, Chief of Engineering Dept., French State Railways, 44 Rue de Rome, Paris, France.
GAALAAS, G. L., Sales Engineer, Empire Sheet and Tin Plate Co., Mansfield, Ohio.
GARRITY, L. V., Testing Engineer, Michigan State Highway Dept., Lansing, Mich. For mail: 603 Swift St., Ann Arbor, Mich.
GEORGI, C. W., Chief Chemist, Enterprise Oil Co., Inc., 164 Chandler St., Buffalo, N. Y.
GRIFFITH, W. M., Product Engineer, Atlas Imperial Diesel Engine Co., Oakland, Calif.
HEINE, R. M., Chief Chemist, L. R. MacKenzie, Inc., 720 S. Kenosha St., Tulsa, Okla.
INOUYE, AIZIN, Chief Mechanical Engineer, South Manchuria Railway Co., Central Laboratory, Sakako, Dairen, Manchuria, China.
JARVIS, L. A., President, W. B. Jarvis Co., 1501 Paris Ave., S. E., Grand Rapids, Mich.
JEFFRIES, W. J., Senior Materials Engineer, U. S. Navy, Bureau of Construction and Repair, Navy Dept., Washington, D. C.
KITCHIN, F. B., Engineer-in-Charge, Railway Electrification Section, British Insulated Cables, Ltd., Prescot, Lancashire, England.
LABORATOIRES DU BATIMENT ET DES TRAVAUX PUBLICS, Robert L'Hermite, Directeur-adjoint, 12 Rue Brancion, Paris XV, France.
MACDONALD, D. L., District Manager, Pittsburgh Testing Laboratory, 205 W. Wacker Drive, Chicago, Ill.
MACPHERSON, T. C. H., President, Morgan T. Jones Co., Inc., Room 1551, 228 N. La Salle St., Chicago, Ill.
MCDERMET, J. R., Chief Engineer, Elliott Co., Jeannette, Pa.
MERLEY, S. R., Research Laboratory Director, Doherty Research Co., Box 309, Camden, N. J.
MILLSOM, J. A., Vice-President and General Sales Manager, W. S. Dickey Clay Manufacturing Co., 200 New York Life Bldg., Kansas City, Mo.
NEELY, G. L., Research Engineer, Standard Oil Co. of California, Library, Richmond, Calif.
NORTH CAROLINA STATE COLLEGE, ENGINEERING EXPERIMENT STATION, Harry Tucker, Director, Raleigh, N. C.
OREGON STATE AGRICULTURAL COLLEGE LIBRARY, Corvallis, Ore.
PARTRIDGE, E. P., Director of Research, Hall Laboratories, 304 Ross St., Pittsburgh, Pa.
WEBB, C. Z., Refinery Engineer, The St. Helens Petroleum Co., Ltd., Los Angeles, Calif. For mail: Box 367, Pico, Calif.
WUERPEL, C. E., Concrete Testing Engineer, U. S. Engineer Office, War Dept., Eastport, Me.
YIKE, J. S., Chief Chemist, Great Lakes Portland Cement Corp., Box 960, Buffalo, N. Y.

*Junior Members (4)*

BLANCHARD, A. C., 714 Thirty-fourth St., Oakland, Calif.
LARRIMER, J. P., JR., Junior Engineering Aide, U. S. Navy, Public Works Dept., Fourth Naval District, Navy Yard, Philadelphia, Pa. For mail: 237 S. Forty-first St.

## Personals

News items concerning the activities of our members will be welcomed for inclusion in this column

E. O. SWEETSER, acting head of the Department of Civil Engineering, Washington University, was recently elected president of the Engineers' Club of St. Louis.

F. D. ABBOTT, formerly Technical Superintendent, The Ohio Rubber Co., Willoughby, Ohio, is now Assistant General Manager, Johnson Rubber Co., Middlefield, Ohio.

PAUL WEEKS, who was Washington Manager of the Caterpillar Tractor Co., has been made Manager of the Special Sales Division of the same company, with offices in Peoria, Ill.

E. J. P. FISHER is now Metallurgist, Wire Division, Republic Steel Corp., Chicago, Ill. He was connected with the Keystone Steel and Wire Co. in Peoria, as Physical Metallurgist.

E. H. HARVEY was recently made Director, Technical Dept., Ault & Wiborg Corp., Cincinnati, Ohio. He was formerly Director, Bureau of Standards, Montgomery, Ward & Co., Chicago, Ill.

R. S. SIMMONS is now Metallurgical Engineer, Keystone Steel and Wire Co., Peoria, Ill. He was formerly Chief of Metallurgical and Inspection Depts., Pittsburgh Steel Co., Monesson, Pa.

R. D. SAKLATWALLA, who was Vice-President, Vanadium Corp. of America, Bridgeville, Pa., was recently made President of the U. S. Rustless Steel & Iron Corp., Pittsburgh, Pa.

J. A. SCHAEFFER, formerly Vice-President, in Charge of Research, Eagle-Picher Lead Co., Joplin, Mo., has recently become President, Franklin and Marshall College, Lancaster, Pa.

G. A. SMITH is now Concrete Research Engineer, Resettlement Administration, Washington, D. C. He was formerly Secretary, Code Authority, Read Mixed Concrete Industry, Washington, D. C.

J. L. WICK, JR., President and General Manager, The Falcon Bronze Co., Youngstown, and a director of the American Foundrymen's Association, has been elected vice-president of the association, to fill the vacancy occasioned by the death of Vice-President B. H. JOHNSON.

R. J. TEETOR, President, Cadillac Malleable Iron Co., was recently elected to the executive committee of the American Foundrymen's Association.

F. M. ZEDER, Vice-President in Charge of Engineering, Chrysler Corp., has been made Vice-Chairman of the Board.

H. B. ALLEN, Chief Metallurgist of Henry Disston and Sons, Inc., and a member of the Board of Managers of The Franklin Institute for several years, has been elected Director of the Museum of The Institute.

M. REA PAUL, Consulting Colorist, National Lead Co., was recently made chairman of the Inter-Society Color Council.

## Necrology

We announce with regret the death of the following members:

LOUIS G. CARPENTER, Consulting Engineer, Denver, Colo. Member since 1902.

WILLIAM DOWNS, Eastern Sales Manager, The Burden Iron Co., Troy, N. Y. Mr. Down's period of service with his company extended over 43 years. He represented the company in the Society and was a member of Committees A-2 on Wrought Iron and A-4 on Heat Treatment of Iron and Steel.

B. H. JOHNSON, R. D. Wood Co., Philadelphia, Pa. Member since 1931. Mr. Johnson was active in the work of Committee A-3 on Cast Iron, chairman of its Subcommittee I on Pig Iron and was a member of Committee A-5 on Corrosion of Iron and Steel and D-5 on Coal and Coke. He had recently been appointed the A.S.T.M. representative on the Joint Committee on Pig Iron Qualities.

WILLIAM J. TRETCH, Engineering Dept., Tinius Olsen Testing Machine Co., Philadelphia, Pa. Member since 1906.

*Junior Members (continued)*

OLSEN, TINIUS, 2D, Assistant Treasurer and Sales Engineer, Tinius Olsen Testing Machine Co., 500 N. Twelfth St., Philadelphia, Pa. For mail: 235 Gowen Ave.
SCHOENBORN, E. M., JR., Instructor of Chemistry, University of Delaware, Newark, Del.